JOHN F. KENNEDY SPACE CENTER (KSC) MEDICAL STANDARDS USER GUIDE

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Approved by:

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1. SUBJECT

Medical Standards User Guide for the Kennedy Space Center (KSC).

2. PURPOSE

The KSC Medical Standards User Guide lists operational guidelines for the Occupational Medicine Provider for the KSC Occupational Health Program (OHP) operations.

A description of physical examination categories is provided in which the Occupational Medicine Provider classifies job related evaluations and examinations. Each physical examination category is associated with minimum evaluation and examination requirements. This document should be viewed as giving the Occupational Medicine Provider enough leeway to determine the local needs of the employee, employer, National Aeronautics and Space Administration (NASA), and the health care provider in order to comply with the intent of the applicable physical examination category.

The health care provider evaluates each applicable employee for medical conditions that may impair that employee's ability to successfully complete their job functions in a safe and efficient manner. The health care provider makes a determination whether or not the medical condition adversely affects the employee's ability to perform their job within safe and efficient means. Significant medical conditions that are well controlled/stable may not adversely affect an employee's performance and may be acceptable for medical clearance. The extensive listing of potential medically disqualifying factors listed in this document is intended to assist the health care provider in determining the medical clearance status of an employee. In cases of uncertain medical clearance, the health care provider is encouraged to consult with fellow health care providers, their Medical Director, NASA, or applicable regulatory agency as deemed necessary to assist with the decision.

3. SCOPE

The Occupational Health Care Provider applies the Medical Standards in this user guide to all government, civil service, contractor and sub-contractor personnel, to the extent provided by contract, that perform any official work place duties on KSC and other geographical locations operating under the direction of NASA.

This document may be used by the OHPs at KSC, other NASA centers and their respective occupational medicine service providers. Medical examinations performed in compliance with this document at other NASA approved sites may imply acceptable examinee medical certification at KSC.

Employers need to identify medical surveillance, job certification, or medical consultation needs for each of their applicable employees and request appropriate evaluations and examinations from the Occupational Medicine Provider.

4. REFERENCE DOCUMENTS

NASA Policy Directive (NPD) 1800.2, NASA Occupational Health Program

NASA Policy Requirement (NPR) 1800.1, NASA Occupational Health Program Procedures

Kennedy NASA Policy Directive (KNPD) 1800.1, Environmental Health Program

KNPD 1810.1, KSC Occupational Medicine Program

KNPD 1860.1 – KSC Radiation Protection Program

Kennedy NASA Policy Requirement (KNPR) 1820.3, KSC Hearing Loss Prevention Program

KNPR 1820.4, KSC Respiratory Protection Program

KNPR 1840.19, KSC Industrial Hygiene Program

KNPR 1860.1, KSC Ionizing Radiation Protection Program

KNPR 1860.2, KSC Nonionizing Radiation Protection Program

National Fire Protection Association 1582, Standard on Comprehensive Occupational Medicine Program for Fire Departments

American National Standards Institute Standards

Federal Aviation Administration (FAA) Standards

PL-93-579 - Federal Privacy Act of 1974

10 Code of Federal Regulations (CFR), Nuclear Regulatory Commission

29 CFR, Occupational Safety and Health Administration

45 CFR Parts 160, 162 and 164, Health Insurance Reform: Security Rule

45 CFR parts 160 and 164, Standards for Privacy of Individually Identifiable Health Information: Final Rule

49 CFR, Department of Transportation (DOT)

5. QUALITY RECORDS

QUALITY RECORD	RESPONSIBLE ORGANIZATION	RETENTION PERIOD
Employee Medical Records	NASA (delegated to the KSC OHP contractor)	As per applicable CFR, based on exposures or record retention guidelines

All data generated as the result of the implementation of the KSC (OHP) related to individuals is considered NASA property and is protected under the provisions of the Federal Privacy Act of 1974 (PL-93-579). Disclosure of any such information is protected by the provisions of the Privacy Act and must be coordinated with the applicable government authority. Medical records will be managed in accordance with the Health Insurance Portability and Accountability Act (HIPAA) as applicable.

6. PROCEDURE

6.1 Physical Exam Classifications

Specific physical examination classifications, related physical examination codes and certification processes are to be managed by the KSC Occupational Medicine Provider. The Occupational Medicine Provider must comply with regulatory requirements as well with the specific elements within this document.

The Occupational Medicine Provider establishes and regularly updates a document to detail the available physical examinations provided with the intent to meet regulatory requirements, NASA requirements and local employer needs.

For the purposes of this document, physical examinations may be categorized in six Classes. An employee may have work requirements which fall under one or more of these physical examination classes. Each specific physical examination requirement is to be evaluated according to its respective class. The six Classes are as follows:

a. Class A

Class A examinations may include a broad variety of examinations from Crane Operator to Self-Contained Atmospheric Protective Ensemble (SCAPE) Suit operations.

Examinees in this class are physically qualified for general employment at KSC, and other sites (including foreign locations). A Class A Standard denotes good health and reasonable fitness, but one or more minor medical conditions may be present. The presence of major medical conditions needs careful evaluation by the health care provider in order to determine if the medical conditions are expected to adversely affect the employee's safe and efficient job duties.

Class A examinations may involve exercise stress testing. The Occupational Medicine Provider determines and/or takes direction from NASA as to when exercise stress testing is required for specific Class A medical certifications. Examples of job duties for which exercise stress testing is recommended are (but not limited to):

1) Critical/hazard duty crane operations.

2) Multiple passenger bus drivers.

3) Security employees.

4) Fire personnel.

5) Locomotive drivers.

6) Crawler transport operators.

7) SCAPE suit operators.

8) Employees with diving duties.

Exercise stress testing will be performed to a level of 'near maximal' ability and/or to 95% of the employee's Predicted Age Adjusted Maximal Heart Rate (PAAMHR), except where deemed appropriate by the Occupational Medicine Provider and for nine minute timed exercise stress testing via the Bruce Protocol for SCAPE suite physicals. The Occupational Medicine Provider delineates stress testing requirements within their own documentation process. These stress-testing requirements are to be partnered with NASA and meet the requirements delineated above.

b. Class B

Class B examinations are generally driven by documented regulatory requirements and may be specific to a certain aspect of the employee's health. The Occupational Medicine Provider needs to have a working knowledge of these regulatory requirements and the effects of working environments and conditions on the employee as they relate to specific regulations.

Class B examinations may include employer specific requirements and may be limited to specific physical examination areas and/or findings. Such employer specific requirements will be delineated within documentation provided by the Occupational Medicine Provider.

Examinees in this class need to meet specific regulatory required parameters and/or the parameters established by the Occupational Medicine Provider's Instruction. Additionally, some of the examinees may also have to meet Class A standards depending upon what specific certifications have been selected. Examples include confined space, asbestos, hearing conservation, cadmium, lead and respiratory protection.

c. Class V

Class V examinations pertain to visual specifications. Visual specifications can be driven by regulatory agency, NASA, or the Occupational Medicine Provider's Instruction.

Examinees in this class must meet visual standards as specified by NASA, contractor requirements, and governmental agency or as per the Occupational Medicine Provider's Instruction. Some examination examples include solder workers and wire inspectors.

d. Class D

Class D medical examinations include those employees that drive vehicles, buses, and machinery that generally falls under the auspices of the DOT.

Examinees in this class must meet DOT standards as per the Federal Motor Carrier Safety Regulations.

e. Class FAA

Class FAA examinations pertain to the Federal Aviation Administration and the medical examinations related to the FAA.

Examinees in this class must meet FAA standards.

f. Class Other

'Class Other' examinations are designated to all other examinations that may be necessary and/or required in order for an employee to perform their job duties. This class also includes examinees in an executive physical examination program, federal employee health program or other health promotional program as established by the Occupational Medicine Provider's Instructions and as permitted by applicable contracts.

7. INSTRUCTIONS FOR THE HEALTH CARE PROVIDER

Physical examinations are provided to meet the requirements and specifications within this document. The Occupational Medicine Provider determines the specific processes in order to comply with the requirements and specifications. The Occupational Medicine Provider establishes and regularly updates documented Instructions on specific items, processes, etc. to meet the requirements of this document.

The examining Health Care Provider may individually determine if an employee is qualified or not qualified to meet the medical requirements of the class of physical examination. See the Waivers and Deviations section for additional information.

a. In the event of obvious medical qualification based on the absence of significant physical examination findings, the signature of the examining health care provider is sufficient for medical certification.

b. In the case of doubt about qualification, consultation with another staff health care provider, physician or the OHP Medical Director is required.

c. The OHP Medical Director may consult with the applicable NASA medical authority for difficult waiver determinations.

The examining physician should evaluate each employee for specific medical conditions that may impair that employee's ability to properly perform their job duties in a safe and efficient manner. A disqualifying condition is not intended to be a discriminatory factor, but the existence of such a condition may entail an increased risk for the employee, co-workers and the NASA mission. Therefore, each health care provider should carefully evaluate the employee for disqualifying medical conditions.

The medical conditions listed below (see Medical Conditions and Causes for Disqualification) contain detailed information of specific medical problems that, when identified, may impair the workers ability to perform their work duties in a safe and effective manner. Identification of these medical conditions should be one of the underlying objectives of the health care provider that performs the job-related physical examination. If any employee has a medical condition identified that does not meet these medical standards, this document describes the process by which, during the course of the physical examination, that employee's medical certifications are to be either disqualified or considered for a waiver.

8. PHYSICAL EXAMINATION FREQUENCY

8.1 Medical examination certification time duration is related to:

a. The type of specific physical examination performed, as regulatory guidelines must be followed.

b. The medical findings and medical conditions present.

c. Whether existing medical conditions are adequately controlled.

d. The opinion of the health care provider.

e. The age of the patient.

8.2 For scheduling purposes, job related and other periodic physicals should be requested and targeted to be accomplished within the 120 day period prior to the end of the examinee's certification expiration (the certification expiration is typically directly related to the end of the examinee's birth month).

a. Class A

1) Physical Examinations will be performed according to the following times:

a) Pre-placement; At age 20, 25, 30, 35, 40, 42, 44, 46, 48; and annually age 50 and over.

b) The health care provider may determine that more frequent examinations are necessary to monitor the health of the employee.

b. Class B

Physical examinations are usually determined by regulatory documentation. Most of the Class B physical examinations will be performed on no less than a biennial basis; the Occupational Health Provider and/or the examining physician may determine the need for more frequent examinations.

Some Class B examinations may be performed on an infrequent basis; as specified by NASA, regulatory agency or as per the Occupational Health Provider's documentation (e.g. Respiratory evaluations for ELSA can be performed no less than once every 10 years, assuming no changes in employee health or employee use as delineated in the applicable CFR).

c. Class V

Duration of visual examination certification depends on the circumstances and certification. Those employees with more critical job duty visual requirements may need Class V examinations on an annual basis. NASA or employer requirements may drive the establishment of Class V examination frequencies for specific physical examination types; the specifics of which will be incorporated within the Occupational Health Provider's documentation.

d. Class D

Examinations will be performed according to DOT requirements. Examination frequency may be more frequent depending upon the health care provider's directive, NASA policy, and/or employer policy directives.

e. Class FAA

Examination frequencies are determined by the FAA. Please refer to the FAA publications and/or the Occupational Health Provider's documentation for details.

f. Class Other

Examinations will be performed according to NASA, employer or Occupational Health Provider's documentation.

9. PHYSICAL EXAMINATION CONTENT

9.1 Physical examination components are highly dependent on the class of physical being performed, the required biological regulatory monitoring requirements, NASA directives, employer requests and the Occupational Health Provider's documentation.

The following recommended examination components may not apply to specific examinations, such as those that are performed for food services, the hearing conservation program, the health stabilization program (prime crew contact), visual certification examinations, etc. The reasons for such specifications are to provide a standardized, basic content in physical examinations and to minimize opportunity for individual variances among examiners.

a. The physical examination is performed in parts. Each part is generally associated with an individual visit, but may be performed in one visit for all parts (as determined by the Occupational Health Provider).

1) Part I: Vital signs, blood chemistries, complete blood count (CBC) with differential, urinalysis, x-ray as requested by the physician (a baseline PA chest x-ray is recommended for all examinees), visual testing, audiogram, pulmonary function testing, electrocardiogram (ECG) and applicable health history forms.

2) Part II: Physical examination by the health care provider. The Part II examination is typically performed by a physician; however, Physician Assistants and Nurse Practitioners may perform the examination as long as those entities operate under the rules and regulations that apply to their license.

b. As a suggested minimum, every "complete" physical examination should include (Note: Disrobing is up to the discretion of the examining health care provider.):

1) Review of the examinee's vital signs.

2) Head, ears, eyes, nose, and throat (HEENT) examination, including ophthalmoscopic examination.

3) Lymphatic examination should include: cervical, axillary and inguinal nodes.

4) Pulses should be checked centrally and distally in all extremities as well as any other pulse deemed important to the examination or medical conditions present. A venous examination should be documented if pertinent findings are present, such as pitting edema in the lower extremities.

5) Auscultation of the heart, lungs, and abdomen.

6) Abdominal palpation and inspection.

7) Inguinal hernia examination.

8) Scrotum and contents examination for applicable patients.

9) Inspection of extremities; examination as deemed appropriate by the examining health care provider.

10) Rectal and prostate examination according to recommendations of the U.S. Preventative Health Task: Screening for Colorectal Cancer and Screening for Prostate Cancer (click on topic for information from U.S. Preventive Services Task Force. A rectal examination will be performed if required by a regulatory agency.

11) Hemoccult will be offered in accordance with the American Cancer Society recommendations.

c. Optional examination elements for females include: breast examinations and pelvic examinations.

d. Every completed Standard Form (SF)-88 will show:

1) Annotation of pertinent items to reflect positive or negative findings relevant to medical issues raised by the history (SF-93 or KSC 50-76 and KSC 28-958).

2) Comments on all abnormal findings – SF 88 - Item 43.

3) Record of diagnosis – SF 88 - Item 43.

4) Record of recommendations –SF 88 - Item 44.

e. Female examinees may request the presence of a female attendant/chaperone for application and removal of ECG electrodes for graded exercise test (GXT) and/or routine ECG performed. Female attendants will be present any time such is requested by the female examinee; if none are available, the examination should be deferred until the request can be met. The presence of a female health care provider is required during female patient breast or genital examinations.

10. MEDICAL CONDITIONS AND CAUSES FOR DISQUALIFICATION

The examining health care provider may encounter medical conditions that could potentially impact the health of the patient/employee, the health of other employees, the safety of the job duties or the patient's ability to perform certain job duties. The health care provider should investigate physical examination findings and medical conditions and determine the effect of those conditions on the patient's medical certification status.

The medical conditions that follow are potential causes for medical certification disqualifications, so long as those medical conditions are deemed applicable in any shape or fashion to the employee's job duties and/or medical certifications requested.

10.1 Head, Face, Neck, and Scalp

a. Injuries to the head. Also see Neurological and Psychiatric sections.

b. Any deformity or condition that interferes with, or is aggravated by required equipment. Significant skeletal or soft tissue depressions, deformities or prominent exostoses are examples of conditions which may affect required personal protective equipment (PPE) fitting.

c. Deformities of the skull of any degree associated with evidence of disease of the brain, spinal cord, or peripheral nerves. Any unprotected skull defect 3 centimeters in diameter or larger.

d. Loss of or congenital absence of bony substance of the skull where no plate has been inserted, and of a degree to prevent the individual from wearing PPE.

e. Chronic arthritis, complete or partial ankylosis, or recurrent dislocation of the temperal-mandibular joint.

f. Congenital cysts of brachial cleft origin or those developing from the remains of the thyroglossal duct, with or without fistulous tracts.

g. Chronic draining fistulae of the neck, regardless of cause, or similar lesions.

h. Cervical lymphadenopathy of other than benign origin. Healed tuberculosis (TB) lymph nodes, except when few in number and densely calcified.

i. Spastic contractions of the muscles of the neck, if persistent or chronic.

i. Cervical ribs, if there is a history of symptoms or if symptoms or signs of arterial compression at the level of the thoracic outlet can be produced by hyperabduction, scalenus, or costoclavicular maneuvers.

k. Disorders of the thyroid gland. Also see endocrine and metabolic sections.

l. Thoracic Outlet Syndrome.

10.2 Nose, Sinuses, Mouth, and Throat

a. Deformities, injuries, or destructive diseases of the mouth, nose, throat, pharynx, or larynx that interferes with breathing, speech, or use of PPE.

b. Deviation of the nasal septum, enlarged turbinates, or other obstructions to nasal ventilation that interfere more than moderately with nasal breathing or that can be expected to require frequent or prolonged medical treatment.

c. Allergic rhinitis or vasomotor rhinitis, unless mild or controlled by antihistamine medication, nasal steroids or desensitization.

d. Atopic rhinitis.

e. Perforation of the nasal septum, if a manifestation of organic disease, if progressive or if respiration is accompanied by a whistling sound.

f. Nasal polyps or a history of nasal polyps, unless surgery was performed at least a year before examination and there is no evidence of recurrence.

g. Anosmia or parosmia.

h. Chronic sinusitis, unless of mild degree and considered unlikely to limit performance of duty.

i. Harelip, if such interferes with PPE or function.

j. Loss of the whole or a large part of either lip, if interferes with the use of personal protective equipment or proper communication.

k. Partial loss, atrophy, hypertrophy or other malformations of the tongue, if these conditions interfere with speech, or swallowing, or appear to be progressive.

l. Benign tumors of the tongue that interfere with function.

m. Marked stomatitis, leukoplakia, or ulceration of the mouth.

n. Ranula, if extensive.

o. Salivary fistula.

p. Ulceration, perforation, or extensive loss of substance of the hard or soft palate; extensive adhesions of the soft palate to the pharynx; or complete paralysis of the soft palate. Unilateral paralysis of the soft palate that does not interfere with speech or swallowing and is otherwise asymptomatic is not disqualifying. Loss of the uvula that does not interfere with speech or swallowing is not disqualifying.

q. Chronic enlargement of the tonsils that interferes with speech or swallowing.

r. Adenoid hypertrophy that interferes with breathing or is associated with recurrent otitis media.

s. Chronic laryngitis, if the condition interferes with communication.

t. Paralysis of either vocal cord if the condition interferes with proper communication.

u. Aphonia or history of recurrent aphonia, if the cause was such as to make subsequent attacks probable.

v. Tracheostomy, tracheal fistula or tracheal stenosis.

w. Malformations, injuries or diseases of the esophagus, such as ulceration, diverticulum, varices, stricture, achalasia, pronounced dilation, or esophagitis.

x. Primary or metastatic cancer of any structures of the head and neck. Uncomplicated superficial skin cancers of the basal cell or squamous cell variety are not necessarily disqualifying.

10.3 Ears

a. Agenesis or markedly disfiguring deformity of the auricle.

b. Atresia, tortuosity, severe stenosis or tumor of the external auditory canal, which prevents an adequate view of the tympanic membrane or effective therapeutic access to the entire external auditory canal.

c. Symptomatic external otitis, acute or chronic.

d. Mastoiditis, acute or chronic, or mastoid fistula.

e. Residual of mastoid surgery if there is marked external deformity that interferes with wearing of required equipment.

f. Acute or chronic suppurative otitis media.

g. Acute or chronic serous otitis media.

h. Persistent perforation of the tympanic membrane.

i. Adhesive otitis media associated with a 20 decibel or more hearing loss in either ear regardless of the hearing level in the other ear.

j. Repeated attacks of catarrhal otitis media. Sclerotic tympanic membranes by themselves are not necessarily disqualifying.

k. Meniere's syndrome or labyrinthitis.

l. History of surgery involving the middle ear, excluding myringotomy, if there is a problem with hearing or equilibrium.

m. Acoustic neuroma, unless such as been successfully surgically managed for more than one year from the current medical evaluation.

10.4 Hearing

a. Any hearing loss which precludes safe and effective performance of duty despite use of hearing aid.

b. Hearing conservation program requirements will be followed in accordance with regulatory standards.

10.5 Dental

a. Insufficient dentition or lack of serviceable prosthesis that interferes with PPE or function.

b. Diseases and abnormalities of the jaws or associated structures that are not easily remedied and that may be expected to incapacitate the examinee in performance of duty for prolonged or recurrent periods or interferes with the use of PPE.

c. Orthodontic appliances for continued treatment, attached or removable. Retainer appliances are permissible, provided all orthodontic treatment has been satisfactorily completed.

10.6 Eye

a. Lids

1) Ingrown eyelashes.

2) Destruction of the lids sufficient to impair protection of the eye from exposure.

3) Disfiguring scars and adhesions of the lids to each other or to the eyeball.

4) Blepharitis, chronic, unless mild and considered by the examiner that the condition is unlikely to interfere with performance of duty.

5) Blepharospasm.

6) Ptosis that interferes with vision.

7) Inversion or eversion of the eyelids.

8) Lagophthalmos.

9) Growths or tumors of the eyelid, except small, asymptomatic, and non-progressive benign lesions.

10) Dacryocystitis, acute or chronic.

11) Epiphora.

12) See visual standards.

b. Conjunctiva

1) Conjunctivitis, acute, until recovered.

2) Conjunctivitis, chronic, including vernal catarrh.

3) Trachoma, unless healed without scarring.

4) Xerophthalmia.

5) Pterygium that encroaches on the cornea more than 3 millimeter (mm), interferes with vision, or is progressive (as evidenced by marked vascularity on a thick elevated head).

c. Cornea

1) Keratitis, acute or chronic.

2) Corneal ulcer. History of recurrent corneal ulcers or corneal abrasions (including herpetic ulcers).

3) Vascularization or opacification of the cornea from any cause, when it is progressive or interferes with vision.

4) Corneal dystrophy of any type, including keratoconus of any degree.

d. Uvea

1) Inflammation of the uveal tract (iris, ciliary body, or choroid), acute, chronic, or recurrent.

e. Retina

1) History of detachment of the retina.

2) Degenerations of the retina, to include macular cysts, holes, and other degenerations (hereditary or acquired) and other conditions affecting the macula. All types of pigmentary degenerations (primary and secondary).

3) Retinitis or other inflammatory conditions of the retina, unless there was a single episode which has healed and does not interfere with vision.

4) Chorioretinitis, unless there was a single episode which has healed and does not interfere with vision.

5) Progressive retinopathy regardless of etiology.

f. Optic Nerve

1) Optic neuritis, neuroretinitis or a documented history of retrobulbar neuritis.

g. Lens

1) Aphakia, unilateral or bilateral.

2) Dislocation of a lens, partial or complete.

3) Opacities of the lens that interfere with vision or are considered to be progressive.

g. Other defects and disorders

1) Asthenopia, if severe.

2) Tumor of the eye or orbit.

3) Exophthalmos, unilateral or bilateral.

4) Nystagmus.

5) Diplopia.

6) Hemianopsia.

7) Loss of normal pupillary reflexes.

8) Retained intraocular foreign body.

9) Absence of an eye or monocular vision.

10) Anophthalmos or microphthalmus.

11) Aniseikonia.

12) Any organic or congenital disorder of the eye or adnexa, not specified above, which threatens to impair visual function.

10.7 Visual Acuity Standards

a. Distant Vision and Near Vision (correction can be used) standards: (Visual acuity determination should include more than one testing modality [Titmus, Snellen or Jeagar] if initial test does not meet the standards)

1) Standard Distant Visual Acuity must be equal to or better than:

(a) 20/40 in one eye and 20/70 in the other;

(b) 20/30 in one eye and 20/100 in the other; or

(c) 20/20 in one eye and 20/200 in the other.

2) Standard Near Visual Acuity (NVA) is 20/40 in the better eye.

3) The requirement for the presence of color vision depends upon the job performed.

b. Visual Standards for selected visual duties:

1) Visual inspectors and workers with visual certifications should have near visual acuity of 20/20 or equivalent and intact color testing.

Equivalent NVA comparison:

Snellen	Jeager
20/100	J-14
20/70	J-12
20/50	J-8
20/40	J-6
20/30	J-4
20/25	J-2
20/20	J-1

c. Field of Vision

1) Defects which significantly interfere with binocular vision function.

2) Contraction of the field of 15 degrees or more in any meridian, unless the contraction is the result of an anatomic conformation of the examinee's face.

3) Scotoma due to an active pathologic process.

4) Scotoma, the result of a healed lesion, unless after full investigation it is the opinion of the examiner that the scotoma will not interfere with visual acuity and well-being of the examinee.

5) Peripheral vision, as tested by confrontation, of less than 140 degrees in the horizontal meridian.

d. Color Vision

1) One or more incorrect responses, including failures to make responses, in reading the 14 charts of the standard color vision test set unless the individual makes a score of 100% using the Bendix Standard Color Wire Test.

e. Night Vision

1) Verified congenital night blindness.

2) Night blindness associated with objective disease of the eye.

3) Night blindness that requires assistance with travel at night.

f. Depth Perception

1) The lack of depth perception may be a disqualifying factor if depth perception is determined to be an important aspect of the employee's job functions. For instance, depth perception is important in aircraft operations and in some crane operations.

2) Heterotropia of more than 15 degrees (26 prism diopters).

h. Intraocular Tension

1) Glaucoma, as evidenced by an intraocular tension above 25 mm mercury (Hg); if secondary changes in the optic disc or visual field are not amenable to treatment.

2) Two or more Intra ocular pressure (IOP) determinations of 22 mm. Hg., or higher, or a difference of more than 4 mm Hg between the IOP in the two eyes may represent "pre-glaucoma" and warrants a thorough evaluation by a qualified ophthalmologist.

10.8 Lungs and Chest-Wall

a. History of active pulmonary TB within the preceding 2 years.

b. Known tuberculous pleurisy, pleurisy of unknown etiology with positive tuberculin test or documented conversion of the tuberculin test, unless treated appropriately with antituberculosis drugs, and subsequently inactive for at least 1 year.

c. Pleural effusion of known or unknown etiology within the preceding 2 years.

d. Spontaneous pneumothorax, history of spontaneous pneumothorax within the last 3 years, or history of recurrent pneumothoraces; unless there is proof of a successful pleurodesis with no subsequent episode for 2 years, authenticated by hospital reports or statement of the patient's personal physician.

e. Empyema, residual sacculation or unhealed sinuses of the chest wall following surgery for empyema.

f. Chronic bronchitis, if pulmonary function is impaired to such a degree as to interfere with duty performance or restrict activities.

g. Bronchiectasis, unless cured by surgical treatment.

h. Asthma of any degree, or a history of asthma, except a history of childhood asthma with a trustworthy history of complete freedom from symptoms since the pubescent era.

i. Bullous or generalized pulmonary emphysema. Small apical blebs are acceptable if isolated and otherwise not associated with significant disease.

j. Cystic disease of the lung.

k. Silicosis, suspected silicosis, or severe pulmonary fibrosis with physical impairment. To include patients manifested by abnormal pulmonary function tests.

l. Abscess of the lung.

m. Chronic mycotic infection of the lung, such as coccidioidomycosis, histoplasmosis, or blastomycosis. Residuals of infection, including cavitation, are disqualifying, except for scattered nodular parenchymal and hilar calcifications.

n. Foreign body in the trachea, bronchus, or lung.

o. Chronic adhesive (fibrous) pleuritis of sufficient extent to interfere with pulmonary function or that obscure a lung field in the chest roentgenogram.

p. History of multiple segmental lung resections if there is a significant reduction of vital capacity, timed vital capacity, maximum breathing capacity, or if there is residual pulmonary pathology. Removal of more than one lobe is cause for rejection, regardless of the absence of residual. Pneumonectomy is cause for disqualification.

q. History of intrathoracic surgery until recovery is complete; as indicated by normal pulmonary function studies and clinical absence of residual disability. A record of pulmonary function studies before intrathoracic surgery serves as a useful baseline study for comparison with postoperative studies.

r. Any tumor, benign or malignant, of the trachea, bronchi, lungs, pleura, or mediastinum.

s. Any malignant tumor of the breast or chest wall to include breast cancer.

t. Suppurative periostitis, osteomyelitis, caries, or necrosis of the ribs, sternum, clavicle, scapulae, or vertebrae.

u. Benign tumor of the breast or chest wall of such size or location as to interfere with the wearing of the equipment.

v. Congenital malformation or acquired deformities that reduce the chest capacity or diminish respiratory or cardiac functions to a degree that interferes with vigorous physical exertion or that produce disfigurement when the examinee is dressed.

w. Acute mastitis or chronic cystic mastitis, if more than mild or symptomatic.

x. History of pulmonary embolus.

y. Sarcoidosis, pulmonary, or history thereof.

aa. Any chronic or recurrent pulmonary disease or residuals of surgery which preclude satisfactory performance of duty, to include symptoms of dyspnea and fatiqueability.

bb. Active hemoptysis.

cc. Pulmonary Hypertension.

dd. Current pneumonia.

ee. Interstitial Lung Disease.

ff. Atypical TB Infections.

10.9 Cardiovascular System

a. Heart pump failure regardless of cause, evidenced by definite symptoms, such as undue breathlessness, pain, or congestive failure (engorged neck vein, enlarged liver, edema, dyspnea, or orthopnea).

b. Hypertrophy or dilatation of the heart evidenced by clinical evaluation, chest x-ray findings, electrocardiographic examination, or echocardiography.

c. Persistent tachycardia with a resting pulse rate of more than 100.

d. Uncontrolled-elevated blood pressure (measured in the sitting position) evidenced by preponderant systolic pressure of 160 mm Hg or greater. Preponderant diastolic pressure of more than 100 mm Hg

e. Orthostatic or symptomatic hypotension evidenced by systolic pressures below 100 mm. Hg. unless there are no associated symptoms and a complete evaluation reveals no abnormality.

f. Pericarditis, myocarditis, endocarditis, or history of these conditions. History of a single acute idiopathic or viral pericarditis with no residual is not disqualifying after 6 months with absence of clinical signs or symptoms.

g. History of findings of a congenital abnormality that has been treated surgically, but with residual abnormalities or complications. For example, patent ductus arteriosus with residual cardiac enlargement or pulmonary hypertension; resection of a coarctation of the aorta when there are other cardiac abnormalities or complications; closure of a secundum type arterial septal defect where there are residual abnormalities or complications.

h. Major congenital abnormalities and defects of the heart and vessels, unless corrected by surgery, without residuals or complications. Uncomplicated dextrocardia and other minor symptomatic abnormalities are acceptable. A minimum recovery period of 2 months following surgery is recommended before consideration of certification.

i. Acute rheumatic fever; a verified history of rheumatic fever or chorea within the previous 2 years; recurrent attacks of rheumatic fever or chorea at any time; or evidence of residual cardiac damage.

j. Clinically significant coronary artery disease as evidenced by angina pectoris, coronary artery insufficiency, coronary thrombosis, myocardial infarction or other diagnostic evidence of significant disease (for example, electrocardiographic or angiographic evidence). A history of coronary artery surgery to include percutaneous transluminal coronary angioplasty (PTCA) procedures and coronary stents.

k. Coronary vasospasm.

l. History of paroxysmal supraventricular tachycardia within the previous 5 years, or at any time if recurrent or disabling, or if associated with Wolff-Parkinson-White syndrome (accelerated A-V conduction), Lown-Ganong-Levine syndrome, or mitral valve prolapse.

m. Verified history or ECG evidence of major arrhythmias such as: atrial tachycardia, flutter or fibrillation; ventricular tachycardia or fibrillation; third degree atrioventricular block or multifocal premature ventricular contractions.

n. Verified history or ECG evidence of major conduction defects such as: second or third degree A-V block or complete left bundle-branch block. First degree A-V block and complete right bundle-branch blocks are acceptable if a complete cardiac evaluation reveals no significant underlying disease.

o. History of recurrent thrombophlebitis or thrombophlebitis with persistent thrombus, evidence of circulatory obstruction, or deep venous incompetence in the involved veins.

p. Varicose veins, if more than mild in degree, or if associated with significant edema, skin ulceration, or scars from previous ulceration. Recurrent thrombophlebitis.

q. Peripheral vascular disease, including Raynaud's disease, thromboangiitis obliterans, erythromelalgia, arteriosclerotic, or diabetic vascular disease.

r. Aneurysm of any vessel. History of adequate correction by surgery is permitted if there are no significant residuals or patient symptoms.

s. Syphilitic heart disease.

t. Significant traumatic heart disease.

u. Cardiac tumors of any type.

v. Hypersensitive carotid sinus.

w. All organic valvular disorders of the heart, including those improved by surgery. Mitral valve prolapse may be acceptable if there is no history of tachydysrhythmia and if complete cardiac evaluation reveals no tachydysrhythmia, conduction defect or underlying disease.

x. Arteritis of any artery.

y. Recurrent syncope, unless of proven benign type and the condition has been corrected.

z. Automatic implantable cardiac defibrillator.

aa. Cardiac Pacemaker.

bb. Significant valvular lesions of the heart, including prosthetic valves. Successful repair of a chordae tendineae may be acceptable depending on the clinical outcome.

10.10 Hematological Diseases

a. Anemia

1) Blood loss anemia, until both the condition and the basic cause are corrected.

2) Deficiency anemia not controlled by medications. This includes pernicious anemia.

3) Hemolytic anemia or other abnormal destruction of erythrocytes.

4) Faulty construction of erythrocytes: hereditary hemolytic anemia, thallassemia, and sickle cell anemia. Heterozygous conditions such as thallassemia minor and sickle cell trait may be acceptable if the hemoglobin is 12.5 grams (gm)per deciliter or greater and there is no history or evidence for crisis, decreased exercise tolerance, or other complications.

5) Myelopthistic anemia, myelomatosis, pre-leukemia, leukemia, and other bone marrow infiltrative diseases.

6) Primary refractory anemia, aplastic anemia, DiGugliemo's syndrome.

7) Any primary or metastatic disease that affects the bone marrow.

b. Hemorrhagic states

1) Due to abnormalities of the coagulation system (hemophilia, factor deficiency, etc.).

2) Due to platelet deficiency.

3) Due to vascular instability.

c. Leukopenia, chronic or recurrent.

d. Myeloproliferative diseases

1) Myelofibrosis.

2) Megakaryocytic myelosis.

3) Polycythemia vera.

4) Multiple Myeloma.

e. Splenomegaly, until the cause is corrected.

f. Thromboembolic disease, except for acute, non-recurrent conditions that occurred more than 12 months prior and do not require anticoagulants.

10.11 Abdomen and Gastrointestinal System

a. Wounds, injuries, scars, or weakness of the muscles of the abdominal wall sufficient to interfere with function.

b. Hernia; other than small asymptomatic umbilical or hiatal. Surgical repair of a hernia may not be disqualifying if the hernia is well healed for at least 2 months. A relaxed inguinal ring with small herniation is not disqualifying.

c. Sinus or fistula of the abdominal wall.

d. Chronic or recurrent esophagitis, including reflux esophagitis associated with a hiatal hernia.

e. Chronic gastritis.

f. Ulcer of the stomach or duodenum, if the diagnosis is confirmed by x-ray or endoscopy; or suspected or verified history of same.

g. History of gastroenterostomy, gastric resection, resection of peptic ulcer, partial resection of the intestines, or surgery for relief of intestinal adhesions.

h. Tumor of any part of the gastrointestinal system unless removed and shown to be benign and resulting in no postoperative dysfunction or residual disease for at least 3 months.

i. History of intestinal obstruction if due to any chronic or recurrent disease. Surgery to relieve childhood pyloric stenosis or intussusception is not disqualifying if there is no residual dysfunction.

j. Crohn's disease (regional enteritis) or other inflammatory bowel disease.

k. Malabsorption syndromes.

l. Irritable bowel syndrome.

m. Ulcerative colitis or verified history of same.

n. Chronic diarrhea, regardless of cause.

o. Megacolon.

p. Diverticulitis or diverticulosis which has given significant symptoms in the previous 12 months.

q. History of gastrointestinal bleeding; unless demonstrated to be due to a single episode of acute gastritis, an ulcer of Meckel's diverticulum which has been surgically corrected, or an acute infectious process that has resolved.

r. Hepatitis within the preceding 6 months or persistence of symptoms for more than 6 months; with or without objective evidence of impairment of liver function. Elevated liver function tests regardless of the cause; a reasonable interpretation of normal values is at the discretion of the examining health care provider.

s. Any chronic liver disease, whether congenital or acquired, to include: cirrhosis of hepatic or biliary origin.

t. Marked enlargement of the liver from any cause.

u. Cholecystitis, acute or chronic, with or without cholelithiasis.

v. Cholelithiasis.

w. History of cholecystectomy, if there are postoperative signs or symptoms indicative of residual dysfunction, such as postoperative stricture of the common bile duct reforming of stones in the ducts incisional hernia or gastrointestinal dysfunction.

x. Biliary dyskinesia.

y. Pancreatitis, acute or chronic, or history of same.

z. Chronic enlargement of the spleen.

aa. Splenectomy, for any reason except the following:

1) Trauma to an otherwise healthy spleen.

2) Hereditary spherocytosis.

3) Disease involving the spleen when followed by correction of the condition for a period of at least 2 years.

10.12 Anus and Rectum

a. Proctitis.

b. Stricture or prolapse of the rectum.

c. External hemorrhoids that cause marked symptoms, or internal hemorrhoids that hemorrhage or protrude intermittently or constantly.

d. Fecal incontinence.

e. Fistula in anal region.

f. Ischiorectal abscess.

g. Fissure in anal/genital region.

10.13 Genitourinary System

a. Proteinuria under normal activity (at least 48 hours post strenuous exercise) greater than 150 milligram (mg)/24 hours.

b. Hematuria, cylindruria, hemoglobinuria, specific gravity, less than 1.010, or other findings indicative of renal tract disease.

c. Acute or chronic nephritis.

d. Stricture of the urethra.

e. Urinary fistula.

f. Urinary incontinence.

g. Absence of one kidney. Functional impairment of either one or both kidneys.

h. Renal dialysis or renal transplantation.

i. Presence of genitourinary calculus. History of bilateral renal calculi at any time. History of calculus in the previous 12 months, or history of lithotomy within the previous 24 months will be considered for certification if an evaluation reveals no residual stone or underlying metabolic condition.

j. Acute or chronic pyelitis, pyelonephritis.

k. Floating kidney.

l. Hydronephrosis or pyelonephrosis.

m. Tumor of the kidney, bladder, testicle, prostate, or associated structures, or history of same.

n. Cystic kidney, polycystic kidney or documented cyst on either kidney.

o. Chronic cystitis.

p. Amputation of the penis, if such interferes with job duties.

q. Hypertrophy of the prostate gland with urinary retention; abscess of the prostate gland or chronic prostatitis.

r. Epispadias or hypospadias if such interferes with job duties.

s. Hydrocele or left varicocele, if large or painful, or any right varicocele.

t. Undescended testicle, unless corrected surgically without complications more than two months prior to examination.

u. Chronic orchitis or epididymitis.

v. Gonococcal infections, chronic; chancroid; granuloma inguinale, lymphogranuloma venereum or any symptomatic or potentially symptomatic sexually transmitted disease.

w. Urethritis, acute or chronic, other than gonorrheal urethritis without complications.

x. Major abnormalities and defects of the genitalia such as a change of sex, a history thereof, or complications (adhesions, disfiguring scars, etc.) residual to surgical correction of these conditions.

y. Any disease of the kidney, ureter, bladder or prostate which may affect job performance.

10.14 Pelvis

a. Chronic disease of the genitourinary tract and/or associated structures that, in the opinion of the examiner, will cause significant job performance disability.

b. Dysmenorrhea, endometrosis, ovarian cysts or other gynecologic conditions that may adversely affect job performance.

10.15 Neurological Disorders

a. Neurosyphilis in any form (meningovascular, tabes dorsalis, or general paresis).

b. Meningitis, encephalitis, or poliomyelitis within 1 year prior to examination; or if there are residual neurological defects that would interfere with satisfactory work performance.

c. History of seizure disorder unless well controlled on reasonable dosages of medications and seizure free for 1 year; documentation should be provided by the patient's private physician. Seizures occurring after omission of medications or ingestion of alcoholic beverages may not be indicative of controllability; compliance with medications should be considered.

d. Narcolepsy, cataplexy, and similar states. Sleep apnea with significant wake time related symptoms.

e. Unexplained loss of consciousness (syncopal episode) unless searching history and complete neurological and cardiovascular evaluation reveals no contributory pathology.

f. Injury of one or more peripheral nerves, unless it is not expected to interfere with normal functions in any practical manner.

g. Any history of subarachnoid hemorrhage, embolism, vascular insufficiency, thrombosis, hemorrhage, arteriosclerosis, arteriovenous malformation, or aneurysm involving the central nervous system. This includes transient ischemic attacks (TIAs) and resolving ischemic neurological deficits (RINDS).

h. Any history of tumor involving the brain or its coverings. Any history of tumor of the spinal cord or its coverings; unless it occurred 5 years before examination, there is no residual, and no complications or sequelae are expected.

i. Family history of hereditary disturbances such as: multiple neurofibromatosis, Huntington's chorea, hepatolenticular degeneration, acute intermittent porphyria, spinocerebellar ataxia, peroneal muscular atrophy, muscular dystrophy, or familial periodic paralysis. A strong familial history of such a syndrome, indicating a hereditary component, should be strongly considered as a cause for disqualification in the absence of clinical symptoms or signs since the onset of these illnesses may occur later in adult life and can be dramatic in presentation.

j. Any evidence or history of degenerative or demyelinating process such as: multiple sclerosis, dementia, or basal ganglia disease.

k. Any history or evidence of significant acute toxic or metabolic involvement of the central or peripheral nervous system by such agents as carbon monoxide or lead; with neurological sequelae that would interfere with prolonged normal function, or if future complications can reasonably be expected.

l. Any history or evidence of defects such as: basilar invagination, hydrocephalus, premature closure of the cranial sutures, meningocele, and cerebral or cerebellar agenesis; if there is evidence of impairment of normal functions, or if the process is expected to be progressive.

m. Vascular headaches, migraine headaches, and cluster headaches (histamine headaches or Horton's cephalgia); if the condition is of sufficient severity or frequency to interfere with normal function.

n. A verified history of neuritis, neuralgia, neuropathy, or radiculopathy, whatever the etiology, unless:

1) The condition has completely subsided and the cause is determined to be of no future concern.

2) There are no residuals that could be deemed detrimental to normal function in any practical manner.

o. Polyneuritis, whatever the etiology, unless:

1) Limited to a single episode.

2) The acute state has subsided for at least one year.

3) There are no residuals that could be expected to interfere with normal function in any practical manner.

p. Any history or evidence of chronic or recurrent diseases such as: myasthenia gravis, polymyositis, muscular dystrophy, familial periodic paralysis and myotonia congentia.

q. Evidence or history of involvement of the nervous system by a disease process if there is any indication that such involvement is likely to interfere with prolonged normal function in any practical manner or is progressive or recurrent.

r. Examinees with a history of head injury with the following complications are unacceptable (unless it is the opinion of the patient’s private physician and the examining physician that the condition does not interfere or potentially interfere with the patient’s job duties).

1) Generalized or focal seizures.

2) Transient or persistent neurological deficits indicative of parenchymal central nervous system injury, such as: hemiparesis or hemianopsia.

3) Evidence of impairment of higher intellectual functions or alterations of personality as a result of injury.

4) Persistent focal or diffuse abnormalities of the electro-encephalogram, reasonably assumed to be the direct result of an injury.

s. Examinees with a history of head injury with the following complications are disqualified for at least five years after injury; but, may be qualified after that time if a complete neurological examination and history shows no residual dysfunction or complications:

1) Unconsciousness exceeding 24 hours;

2) Depressed skull fracture, with or without dural penetration;

3) Laceration or contusion of the dura matter or the brain, or a history of penetrating brain injury, traumatic or surgical;

4) Epidural, subdural, or intracerebral hematoma;

5) Central nervous system infection such as abscess or meningitis within six months of head injury;

6) Cerebral spinal fluid rhinorrhea or otorrhea persisting for more than seven days; or

7) Post-traumatic sequelae persisting for more than one month.

t. History of head injury associated with any of the complications below is disqualifying for at least 12 months after injury but may be acceptable after that time, if a complete neurological evaluation shows no residual dysfunction or complications:

1) Unconscious longer than 2 hours but less than 24 hours.

2) Post-traumatic sequelae as manifested by: amnesia, total or patchy; headache; vomiting; disorientation; spatial disequilibrium; personality changes; irritability; impaired memory; poor mental concentration; shortened attention span; dizziness; anxieties; malaise; apathy; lassitude or altered sleep patterns which persists for more than 48 hours.

u. History of head injury, with or without linear fractures, associated with any of the complications below is disqualifying for at least three months but may be qualified if a neurological evaluation shows no residual dysfunction or complications.

1) Unconscious less than 2 hours.

2) Post traumatic sequelae which subside within 48 hours.

10.16 Psychiatric Disorders

a. Psychosis or authenticated history of a psychotic episode; other than those of brief duration; associated with a toxic or infectious process.

b. Psychoneurosis or authenticated history of a psychoneurotic episode which caused any of the following:

1) Hospitalization.

2) Prolonged care by a physician.

3) Loss of time from normal pursuits for repeated periods, even if of brief duration.

4) Symptoms or behavior of a repeated nature that impaired school or work efficiency.

5) Psychoneurotic reaction or nervous disturbance within the preceding 12 months which was sufficiently severe enough to require medical attention or absence from work for more than seven days.

c. Character and behavior (personality) disorders. The following personality disorders may be reasons for medical disqualification only if identified at the time of medical examination for initial placement. A psychiatric evaluation is a necessary part of these type cases. These disorders include:

1) Schizoid, paranoid, cyclothymic, antisocial and asocial personalities.

2) Disorders of sexual practices, such as exhibitionism or pedophilia.

3) Immaturity reactions, such as emotional instability.

4) Chronic alcoholism or alcohol addiction.

5) Current transient personality disorders due to acute or special stress.

6) Disorders in which it is evident by history and objective examination that the degree of immaturity, instability, personality inadequacy or dependency will seriously interfere with adjustment as demonstrated by repeated inability to maintain reasonable adjustment with employers and fellow-workers and other society groups.

7) History of attempted suicide.

8) History of acute situational maladjustment, a transient personality reaction to great or unusual stress in a normally stable individual, if of a degree to significantly impair the examinee's current functional capacity.

9) Illicit drug use, or history of the same within the past two years.

10.17 Extremities

a. General Conditions

1) Acute, subacute, or chronic arthritis.

2) Chronic osteoarthritis or post-traumatic arthritis of isolated joints of more than a minimal degree that has interfered with the ability to follow a physically active vocation.

3) Documented history or finding of rheumatoid arthritis.

4) Post traumatic arthritis of a major joint of more than minimal degree.

5) Active osteomyelitis or a verified history of osteomyelitis, unless inactive with no recurrences during the 2 years before examination and without residual deformity sufficient to interfere with function.

6) Malignant tumor, all types, of bone or joint, or history of same.

7) Benign tumor of bone or joint; if sufficiently large to interfere with function, or if considered progressive or if surgical correction of such creates a condition that impairs the employee's ability to perform normal duty functions.

8) Osteoporosis.

9) Osteochondromatosis or multiple cartilaginous exostoses.

10) Disease or injury of any bone, or joint, healed with residual deformity, rigidity, or limitation of motion so that function is impaired to such a degree that it will interfere with job requirements, or congenital anomalies that are similarly disabling.

11) Unreduced dislocation; substantiated history of recurrent dislocations or subluxation of a major joint, if not satisfactorily corrected by surgery.

12) Instability of a major joint, if symptomatic and more than mild; or if subsequent to surgery there is evidence of instability, weakness or atrophy; or if the individual requires medical treatment regularly or frequently.

13) Malunited fractures that interfere significantly with function.

14) History of ununited fractures.

15) Any fracture in which a plate, pin or screw was used for fixation; if the fixation devices remain in place and are easily subject to trauma or give the examinee significant discomfort or impair proper use of PPE.

16) Muscular paralysis, paresis, contracture, or atrophy; if progressive or of sufficient degree to interfere with the performance of job requirements.

17) Demonstrable loose body in any joint; includes osteocartilaginous or metallic foreign objects.

18) Severe, acute, or chronic sprain of any major joint with residual swelling, limitation of motion, or joint instability.

19) Synovitis with persistent swelling or limitation of motion.

20) Chondromalacia, manifested by verified history of joint effusion, interference with function or residuals from surgery.

b. Upper Extremity

1) Absence or loss of more than one-third of the distal phalanx of either thumb.

2) Absence or loss of the distal and middle phalanx of an index, middle or ring finger of either hand, irrespective of the absence or loss of the little finger.

3) Absence or loss of more than the distal phalanges of any two of the following fingers of either hand: index, middle, or ring.

4) Absence of any portion of the hand or upper extremity in excess of those conditions listed above.

5) Symptomatic amputation stump, neuroma, bone spur, adherent scar, or ulceration.

6) Resection of a joint, other than fingers.

7) Hyperdactylia.

8) Scars and deformities of the fingers or hand, which impair circulation, are symptomatic, or impair normal function to such a degree as to interfere with satisfactory job performance.

9) Healed disease or injury of the wrist, elbow or shoulder with residual weakness or symptoms of such a degree as to preclude satisfactory performance of duty.

10) Limitation of motion (less than specified):

a) Shoulder forward elevation to 90 degrees or abduction to 90 degrees.

b) Elbow - flexion to 100 degrees, or extension to 15 degrees.

c) Wrist - a total range of 15 degrees extension plus flexion.

d) Hand - pronation to the first quarter of the normal arc, supination to the first quarter of the normal arc.

e) Fingers - inability to clench a fist, pick up a pin or needle, and grasp an object.

c. Lower Extremity

1) Loss of either great toe or loss of any two toes on the same foot.

2) Amputation or absence of any portion of the foot or lower extremity in excess of above.

3) Symptomatic amputation stump, neuroma, bone spur, adherent scar, or ulceration.

4) Clubfoot of any degree.

5) Rigid or spastic flatfoot.

6) Weak foot with demonstrable eversion of the foot, valgus of the heel, or marked bulging of the inner border due to inward rotation of the talus; regardless of the presence or absence of symptoms.

7) Elevation of the longitudinal arch (pes cavus); if of sufficient degree to cause subluxation of the metatarsal heads and clawing of the toes.

8) Hammer or claw toes of such degree as to interfere with function or the wearing of footwear.

9) Hallux valgus; if significantly marked to interfere with ambulation or when accompanied by a symptomatic bunion.

10) Bunions, if symptomatic or sufficiently large to interfere with function.

11) Hallux rigidus, if x-ray reveals degenerative joint changes.

12) Plantar wart, if symptomatic.

13) Ingrown toenails, if severe and not remediable.

14) Corn or calluses which are symptomatic, or interfere with ambulation.

15) Overriding of any of the toes, if symptomatic or sufficient to interfere with the wearing of footwear.

16) Verified history of congenital dislocation of the hip, osteochondritis of the hip (Legg-Perthes disease), or slipped femoral epiphysis of the hip with x-ray evidence of residual deformity or degenerative changes.

17) Verified history of hip dislocation within 12 months before examination or degenerative changes on x-ray from old hip dislocation.

18) Difference in leg length of more than 2.5 centimeters (from anterior superior iliac spine to the distal tip of the lateral malleolus).

19) Dislocation of semilunar cartilages or loose foreign bodies within the knee. History of surgical correction of same within the preceding 6 months; or if more than 6 months have elapsed without recurrence, and there is instability of the knee ligaments in lateral or anteroposterior directions in comparison with the normal knee, or abnormalities noted on x-ray; or if there is significant atrophy or weakness of the thigh musculature in comparison with the normal side; or if there is not acceptable active motion in flexion and extension (that is, flexion to 90 degrees and full extension); or if there are other symptoms of internal derangement.

20) Authentic history of physical findings of an unstable or internally deranged joint causing disabling pain or seriously limiting function. Individuals with verified episodes of buckling or locking of the knee who have not undergone satisfactory surgical correction; or, if subsequent to surgery, there is evidence for more than mild instability of the knee ligaments in the lateral and anteroposterior directions in comparison with the normal knee; or if there is weakness or atrophy of the thigh musculature in comparison with the normal side; or if the examinee requires medical treatment of sufficient frequency to interfere with the performance of job requirements.

21) Chondromalacia patella, if there are demonstrable x-ray changes.

22) Osteochondritis dissecans of the knee or ankle, if there are x-ray changes or if the condition is symptomatic.

23) Osteochondritis of the tibial tuberosity (Osgood-Schlatter disease), if symptomatic or with obvious prominence of the part and x-ray evidence of separated bone fragments.

24) Symptomatic varicose veins.

25) Deformities of one or both lower extremities, hip, knee, or ankle joint that interferes with function to such a degree as to prevent the individual from following a physically active vocation.

26) Limitation of motion (less than specified):

a) Hip - flexion to 90 degrees, or extension to 10 degrees (beyond 0).

b) Knee - full extension or flexion to 90 degrees.

c) Ankle - dorsiflexion to 10 degrees, or plantar flexion to 10 degrees.

d) Toes - stiffness that interferes with walking, marching, running, or jumping.

10.18 Spine and Other Musculoskeletal

a. History of disease or injury of the spine or sacroiliac joints; either with or without objective signs, which have prevented the examinee from successfully following a physically active job.

b. Arthritis of the spine, all types.

c. Granulomatous disease of the spine, active or healed.

d. Scoliosis of more than 20 degrees.

e. Abnormal curvature of the spine of any degree in which there is a noticeable deformity when the examinee is dressed, in which pain or interference with function is present, or which is progressive.

f. Spondylolisthesis or spondylolysis, if symptomatic.

g. Herniation of nucleus pulposus, when symptoms and associated objective findings are of such a degree to require repeated hospitalization and/or absence from work.

h. Healed fractures or dislocations of the vertebrae. A compressed fracture, involving less than 25% of a single vertebrae; is not disqualifying if the injury occurred more than 1 year before examination and the examinee is asymptomatic. History of fractures of the transverse processes may not be disqualifying if the examinee is asymptomatic.

i. Spina bifida, when more than one vertebra is involved, or if there is dimpling of the overlying skin.

j. Juvenile epiphysitis with any degree of residual change by x-ray or the presence of kyphosis.

k. Fixed elevation and rotation of the scapula (Sprengel's deformity) which materially interferes with shoulder girdle function.

l. Torticollis, congenital or spastic, which interferes with normal neck function.

m. Cervical rib with demonstrable neurologic impairment, circulatory deficit or if the condition is symptomatic to a degree that may impair routine activities.

n. Osteomyelitis of a rib, sternum, clavicle, scapula or vertebrae.

o. Deficient muscular development.

p. Weak or painful back requiring external support; such as with a corset or brace.

10.19 Skin

a. Generally, any skin disorder, acute or chronic, which is severe enough to cause recurrent incapacitation from duties.

b. Extensive deep or adherent scars that interfere with muscular movements; or with the wearing of required equipment, or that show a tendency to break down.

c. Acne, if there is extensive involvement of the face, neck, shoulders, chest, or back that would be aggravated by or interfere with the wearing of required equipment.

d. Atopic dermatitis with active or residual lesions in characteristic areas, or a verified history of same.

e. Cysts and benign tumors of the skin of such size or location as to interfere with the wearing of required equipment.

f. Dermatitis factitia.

g. Dermatitis herpetiformis.

h. Eczema which is chronic and resistant to treatment.

i. Fungus infections of the skin, systemic or superficial, if extensive or not amenable to treatment.

j. Furunculosis which is extensive, recurrent or chronic.

k. Hyperhidrosis, if chronic or severe.

l. Keloid formation, if the tendency is marked or interferes with the wearing of required equipment.

m. Leprosy.

n. Leukemia cutis; mycosis fungoides; Hodgkin's disease.

o. Lichen planus.

p. Lupus erythematosus (acute, subacute, or chronic) or any other dermatosis aggravated by sunlight.

q. Neurofibromatosis.

r. Nevi or vacuolar tumors, if extensive, or exposed to constant irritation.

s. Pilonidal cyst, if there is a history of inflammation or discharging sinus in the 12 months preceding examination, or a history of surgery within 1 year.

t. Psoriasis, or a verified history of same.

u. Sarcoid, if more than mild, or if other organs are involved.

v. Xanthoma, if symptomatic or accompanied by hypercholesterolemia or hyperlipemia.

w. Pseudofolliculitis barbae when symptoms interfere with the proper wearing of required respiratory equipment or other PPE.

x. History of skin cancer, or concurrent skin malignancy, unless the lesion was a basal cell carcinoma or a superficial squamous cell cancer and has been adequately excised without significant residual deficit or dysfunction.

10.20 Endocrine and Metabolic

a. Adiposogenital dystrophy (Frohlich's syndrome).

b. Adrenal dysfunction of any degree; including pheochromocytoma.

c. Cretinism.

d. Diabetes insipidus.

e. Diabetes mellitus, when insulin dependent (IDDM). If the disease is well controlled and the insulin dose has been stable for a period of one year, then favorable waiver consideration may be granted, providing that there are no end-organ effects which would otherwise be disqualifying. Non-insulin dependent diabetes mellitus (NIDDM) is not disqualifying unless symptomatic, under poor control, or there is end organ disease present. In general, a random blood glucose of over 250 mg/dl, a fasting blood glucose over 140 mg/dl or a glycohemoglobin value of over 10% is considered evidence of poor glycemic control.

f. Gigantism or acromegaly.

g. Goiter.

1) Simple goiter, if associated with pressure symptoms, or if enlargement is of such degree as to interfere with wearing of required equipment.

2) Thyrotoxicosis.

h. Gout.

i. Hyperinsulinism, if confirmed and symptomatic.

j. Parathyroid dysfunction.

k. Hypopituitarism.

l. Myxedema, spontaneous or post-operative with clinical manifestations.

m. Nutritional deficiency diseases (including sprue, beriberi, pellagra, and scurvy) which are more than mild and not readily amenable to therapy or in which permanent pathological changes have been established.

n. Other endocrine or metabolic disorders which obviously preclude satisfactory performance of job requirements, or which will require frequent or prolonged treatment.

o. Familial hyperlipidemia. Personnel found to have a familial hyperlipidemia will be appropriately evaluated and managed by their personal physician. The evaluation of a hyperlipidemia of a type known to be associated with an increased incidence of atherosclerosis and premature death from cardiovascular disease may include studies to exclude associated disease.

10.21 Height, Weight, and Build

Height, weight and body build which is above or below the documented limits prescribed by job requirements; or if height, weight and/or body build interfere with safe work practices.

10.22 Miscellaneous Causes for Rejection

a. Malignancy, all types, or a verified history of same, except for superficial basal cell carcinoma or adequately excised superficial squamous cell cancer with no significant functional deficits.

b. Eosinophilic granuloma.

c. Gaucher's Disease.

d. Schuller-Christian Disease.

e. Letterer-Siwe's Disease.

f. Any acute or chronic communicable disease.

g. Chronic metallic poisoning.

h. Residual of cold injury (due to frostbite, chilblain, immersion foot, or trench foot) such as: deep-seated ache, cold urticaria, paresthesia, hyperhidrosis, easily traumatized skin, cyanosis, ankylosis or amputation of any digit.

i. Heat pyrexia (heat stroke or heat exhaustion) if a reliable history indicates an abnormally lowered heat tolerance threshold.

j. Congenital syphilis or acquired syphilis, whether primary, secondary, or tertiary. A history of primary or secondary syphilis may not be disqualifying provided:

1) The examinee has no symptoms of disease.

2) There are no signs of active disease and no residual thereof.

3) Blood and spinal fluid tests are negative.
4) There is a verified history of adequate antiluetic treatment.

5) There is no evidence or history of central nervous system involvement.

k. Malaria that has not responded to treatment. Cerebral malaria. Malaria which occurred while taking adequate chemoprophylaxis. An examinee that may travel to a malaria area, but is unable to take chemoprophylaxis is not qualified. Other than the above conditions, a history of malaria may not be disqualifying provided:

1) There is a verified history of adequate anti-malarial treatment.

2) The examinee has been free of symptoms for at least one year preceding the examination, without the use of anti-malarial drugs.

3) Erythrocytes are normal in number and structure, and the hemoglobin is at least 12 gm/100millileter.

4) A thick blood smear is negative for malaria parasites.

l. Parasitic infection, all types.

m. History of sensitivity or a demonstrated sensitivity of sufficient severity to require permanent exemption from required immunizations.

n. Extra-pulmonary TB or atypical mycobacterium.

o. Drug abuse of any kind.

p. History of decompression illness, until fully investigated by an expert in diving medicine and found fit to continue diving.

q. Other congenital or acquired abnormalities, defects or diseases which preclude satisfactory performance of job requirements or which require frequent and/or prolonged treatment.

r. Allergies/Angioedema. Mild allergic reactions that are not disabling may not be a disqualifying condition. Moderate to severe allergic reactions, to include airway obstruction, are disqualifying unless the inciting agent is unlikely encountered in the working environment, or adequate warning signs and symptoms are present to permit enough time for assistance to arrive (generally five minutes or less). Angioedema is disqualifying if the condition is not adequately controlled on medication, or if the condition arises with an acute onset.

s. Any medications, which can alter, change or possibly impair motor or mental function. These medications include, but are not limited to: narcotics, hypnotics, sedatives, stimulants, anti-anxiety/anxietiolytics, psychotropics and benzodiazapines.

t. Connective tissue disease, such as dermatomyositis, lupus erythematosis, scleroderma and rheumatoid arthritis.

u. Acute or chronic Infectious diseases interfering with PPE, job duties or places others at risk.

11. WAIVERS AND DEVIATIONS

The presence or finding of one or more of the above medical conditions indicates that the employee, during the course of their job duties, may be compromising the health and safety of themselves, co-workers, and/or materials or assets. If appropriate, the health care provider will determine the applicable waiver authority in order to proceed with a medical qualification for an examinee with the presence of disqualifying conditions.

The Health Care Provider/examiner will ensure the proper documentation of waiver decisions in the applicable medical record. The applicable employee's medical records may contain documentation to readily identify that employee with a waiver status; however, in most cases, the employer does not need to know whether or not their employee is certified with a waiver, unless that waiver status recommends restrictions for the employee. The employer is entitled to manage physician recommended restrictions accordingly.

11.1 Waiver Authority

a. The Health Care Provider/examiner may waiver disqualifying medical conditions so long as those conditions are minor or of little to no consequence to the employee or employer.

b. The Health Care Provider/examiner may seek additional peer and/or physician consultation in order to determine if the presence of the identified medical conditions will unacceptably affect the employee's job duties or substantially affect the employer's risk.

c. The Health Care Provider/examiner will obtain the signature of the OHP Medical Director or designee for the presence of those medical conditions which have been determined to be of major significance, may significantly affect the employee's job duties or affect the employer's risk.

d. The OHP Medical Director or designee determines the qualification status of those employees in question by the Health Care Provider/examiner. The OHP Medical Director or designee may consult with NASA authorities as applicable and deemed necessary.

11.2 Term of Validity for Waivers

Waiver validity is usually for one year; but, may be extended as determined by the waiver authority up to, but not exceeding, the earliest expiration date of the applicable physical examination classifications.

12. ACRONYMS

A-V	Atrio-Ventricular
CBC	Complete Blood Count
CFR	Code of Federal Regulations
DOT	Department of Transportation
ECG/EKG	Electrocardiograph or Electrocardiogram
ELSA	Emergency Life Saving Apparatus
FAA	Federal Aviation Administration
gm	Gram
GXT	Graded Exercise Test
Hg	Mercury
HEENT	Head, ears, eyes, nose and throat
HIPAA	Health Insurance Portability and Accountability Act
IDDM	Insulin Dependent Diabetes Mellitus
IOP	Intra ocular pressure
J	Jeager visual scale
KNPD	Kennedy NASA Policy Directive
KNPR	Kennedy NASA Policy Requirement
KSC	Kennedy Space Center
mg	Milligram
mm	Millimeter
NASA	National Aeronautics and Space Administration
NIDDM	Non-Insulin Dependent Diabetes Mellitus
NPD	NASA Policy Directive
NPR	NASA Policy Requirement
NVA	Near Vision Acuity
OHP	Occupational Health Program
OSHA	Occupational Safety and Health Administration
PA	Posterior-Anterior
PAAMHR	Predicted Age Adjusted Maximum Heart Rate
PPE	Personal Protective Equipment
PTCA	Percutaneous Transluminal Coronary Angioplasty
RIND	Resolving Ischemic Neurological Deficit
SF	Standard Form
TB	Tuberculosis
TIA	Transient Ischemic Attack